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TWO NEW PARASITIC ISOPODS FROM THE EASTERN COAST OF NORTH AMERICA

By A. S. Pearse and Henry A. Walker

Entoniscids are degenerate isopod crustaceans that live within, or at times outside, the bodies of other crustaceans. They have not hitherto been reported from North America, though they have been found in Brazil and Greenland. This paper describes two new species, from North Carolina and Prince Edward Island. These were taken from xanthid crabs. During the summer of 1938 we examined 622 specimens of *Panopeus herbstii* Milne-Edwards at Beaufort, N. C., and 227 *Neopanope texana* (Smith) at Ellerslie, Prince Edward Island. From these males, females, eggs, larvae, and young entoniscids were obtained. Grateful acknowledgement is made to Dr. H. F. Prytherch, director of the Beaufort Biological Station of the United States Bureau of Fisheries, and to Dr. A. W. H. Needler, director of the Prince Edward Island Station of the Fisheries Research Board of Canada, for many courtesies extended to us at their respective stations.

Genus CANCRION Giard and Bonnier

CANCRION CAROLINUS, new species

Figure 12

Female.—Body bent, so that the dorsal side of abdomen is against the dorsal side of thorax; length, flexed 15 mm., extended 24 mm. The cephalogaster bears two large ovate lobes, 2.5 mm. long (fig. 12, *B*, *cg*); in front of these are a pair of small (0.5 mm.) spherical

maxillipeds (*mf*). The thorax bears five pairs of oostegites. On the dorsal side of the abdomen is a prominent hemispherical cardiac tubercle. The pleura (*pl*) and exopods (*ex*) on the abdomen are deli-

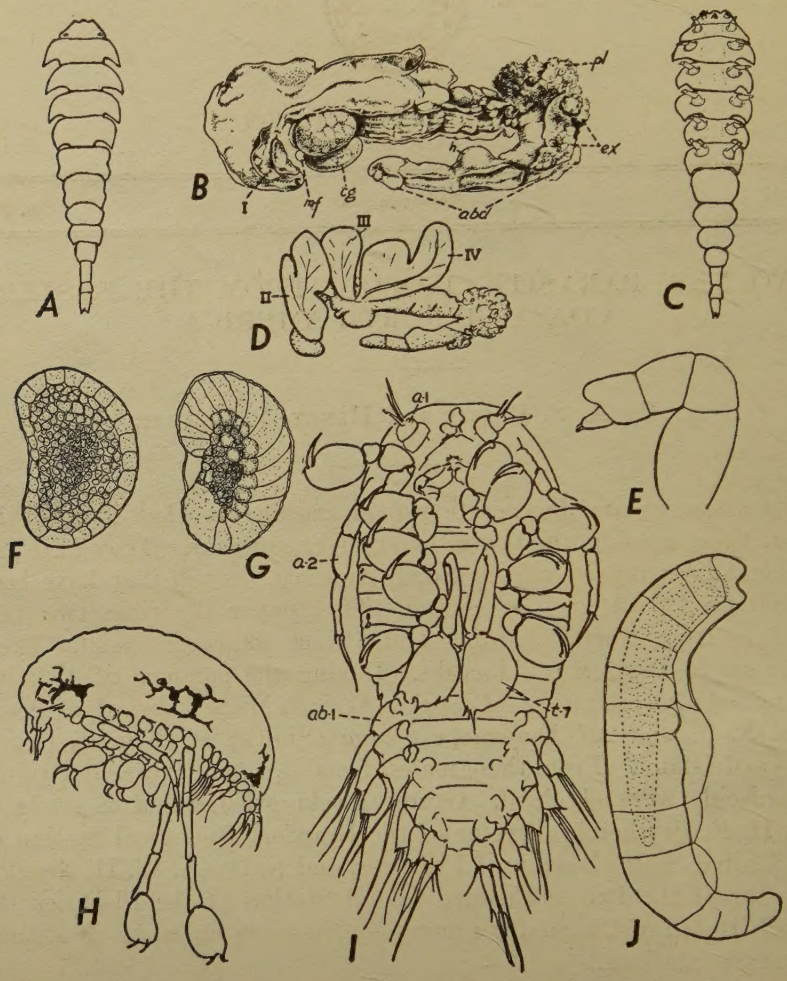

FIGURE 12.—*Cancrion carolinus*, new species: *A*, Dorsal view of male; *B*, lateral view of female (*abd*, abdomen; *cg*, head, or cephalogaster; *ex*, exopods of second and third abdominal segments; *h*, cardiac prominence; *mf*, maxilliped; *pl*, pleural lamellae of first abdominal segments); *C*, ventral view of male; *D*, side view of female showing oostegites (II–IV); *E*, posterior view of third right leg of male; *F*, *G*, developing eggs; *H*, sketch of side view of epicarid larva; *I*, camera-lucida drawing of ventral side of epicarid larva (*a–1*, first antenna; *a–2*, second antenna; *ab–1*, first abdominal leg; *t–7*, last thoracic leg; *j*, young female from body cavity of a crab.

cate, much folded, and convoluted. The first pair of oostegites (I) are small and folded against the side of the frontal prominence; the second pair (fig. 12, *D*, II) cover the first when seen laterally and are notched distally; the third pair (III) are truncate and ex-

panded distally; and the fourth (IV) are notched and extend to the abdominal pleura. The brood chamber is closed in most adults. All oostegites are supported by chitinous thickenings arranged like the veins in an apple leaf. The last three abdominal appendages are absent, but pleural folds are present along the lateral margins, those of the first three form complicated folded structures.

Male.—Body (fig. 12, *A*, *C*) slender, tapered toward posterior end; length 2.1 mm. Head weakly trilobed in front, twice as wide as long, anterior less than half width of posterior margin, two small, laterally elongated eye spots near posterior angles. Antennae absent; antennules 1-segmented, very short, not reaching beyond frontal margin, with 11 setae at tip. The styliform mandibles are enclosed in a suctorial oral cone. Thoracic legs (fig. 12, *C*, *E*) stout, 5-segmented; the penultimate segment expanded distally; the terminal segment much narrower, conical, and bearing two spines at its tip. Abdomen without appendages; terminal segment notched at tip and the rami acute. Males were always found attached to females.

Development.—During July eggs and developmental stages were found (fig. 12, *F*, *G*) in females, and on September 2 a female with epicarid larvae in her brood pouch was found (fig. 12, *H*, *I*). The latter were remarkable for the great length of their last thoracic legs (*t-7*) and swam about actively in sea water. In July wormlike young females of various sizes were found. Apparently the epicarid larva molts into a young female without appendages (fig. 12, *J*).

Occurrence.—Females occurred in various positions in the thoracic cavity of crabs, and males present were clinging to them. Once two mature females were present in one crab; in another crab there were a mature female and two young females. In the 622 crabs examined at Beaufort 3 males, 5 mature females, and 5 young females were collected. The best collecting ground was found to be the marsh east of the railroad bridge at Beaufort; 51 crabs examined from other localities yielded nothing.

Types.—Female holotype, U.S.N.M. No. 77217, from *Panopeus herbstii* Milne Edwards, Beaufort, N. C., September 2, 1938. Male allotype, U.S.N.M. No. 77218, same locality and host, July 13, 1938, A. S. Pearse, collector.

CANCRION NEEDLERI, new species

FIGURE 13

Only one pair of this entoniscid was collected in the body of the first crab examined at Ellerslie, Prince Edward Island; 226 other crabs were searched carefully but no more parasites were found, except one other dead, shriveled female entoniscid.

Female.—Body straight; abdomen not flexed on thorax; length 18 mm. The rounded frontal lobes project dorsally and anteriorly;

total length, 8 mm.; the cockscomblike middle lobe (5.2 mm.) longer than the other two; cephalogastric lobes are spherical, 2.7 mm. in diameter; maxillipeds very small and inconspicuous. The thorax shows a pair of low prominences for the anterior oostegites (*p*) and the last two appear as paired conical papillae (IV, V). The anterior portion of the abdomen is covered by loose, wrinkled, fluffy pleura (*pl*) and exopods (*ex*); behind these three well-defined segments with rounded lateral expansions connect with a small rounded terminal segment. Length of cephalothorax, without frontal lobes, 9.5 mm.; length of abdomen, 7 mm.

Male.—Body rather plump, tapered from middle posteriorly; length 1.4 mm. Head rounded (fig. 3, *B*), not angulate, about twice as wide as long; with two large, round eyespots near posterolateral borders. Terminal segment of abdomen (fig. 13, *C*) bifid at tip, with rami blunt and rounded.

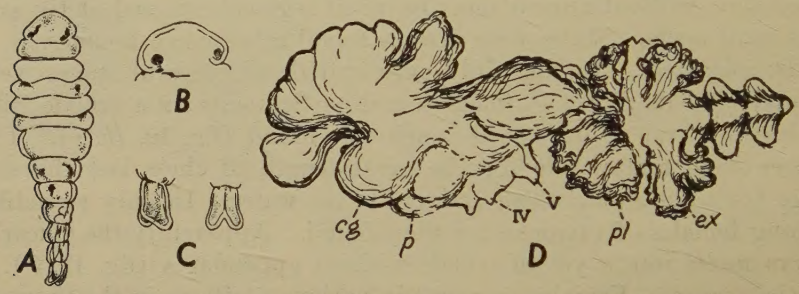

FIGURE 13.—*Cancrion needleri*, new species: *A*, Dorsal view of male; *B*, dorsal view of head of male; *C*, lateral and dorsal views of posterior end of male; *D*, female (*cg*, cephalogaster; *ex*, exopods of second and third abdominal segments; *p*, oostegites I–III; *pl*, pleural lamellae of first abdominal segment).

Types.—Female holotype and male allotype, U.S.N.M. No. 77216, from *Neopanope texana* (Smith), Ellerslie, Prince Edward Island, August 4, 1938, A. S. Pearse, collector.

The two entoniscids described belong in the genus *Cancrion* as defined by Giard and Bonnier (1887), on account of the character of the epicarid larva (p. 228) and adults (p. 239). They differ as follows from the three species previously described: In females the anterior oostegites have fewer and less prominent lobes, the abdominal segments are more clearly defined, the branchial pleural lamellae are confined to the first three abdominal segments, and the cardiac prominences are low; in males groups of denticles are absent from the abdominal segments and thoracic legs, the head is short and broad, and the thoracic pleural lamellae are narrow. They more closely resemble each other than the three species described by Giard and Bonnier from crabs of the genera *Xantho* and *Pilumnus* along the coast of France.

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